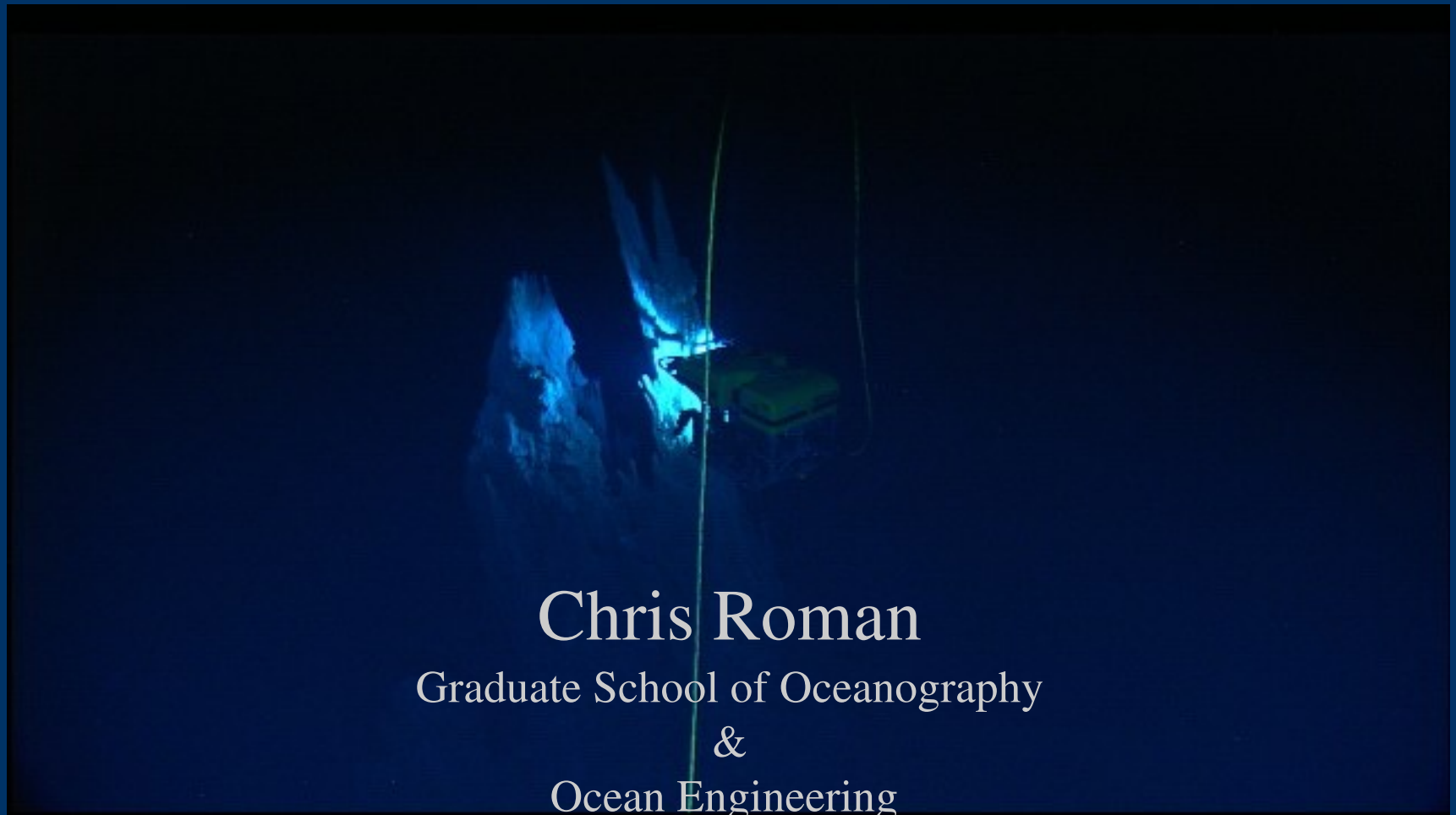


Underwater robots: ROVs, AUVs, gliders and all that good stuff

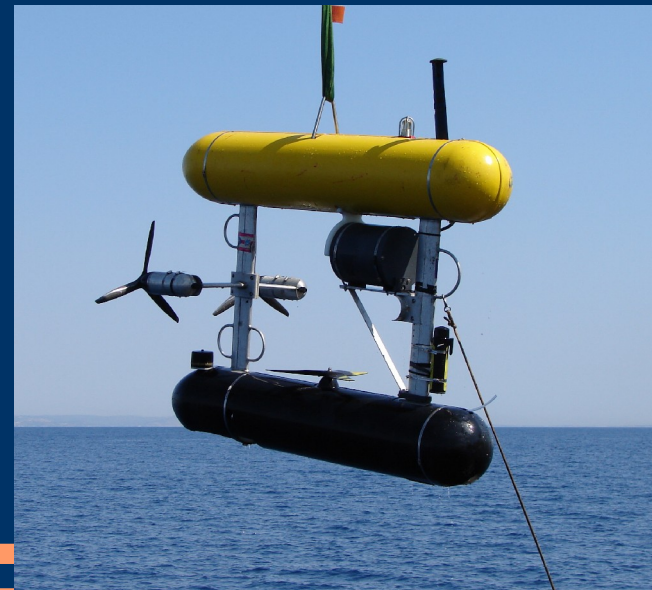


Chris Roman

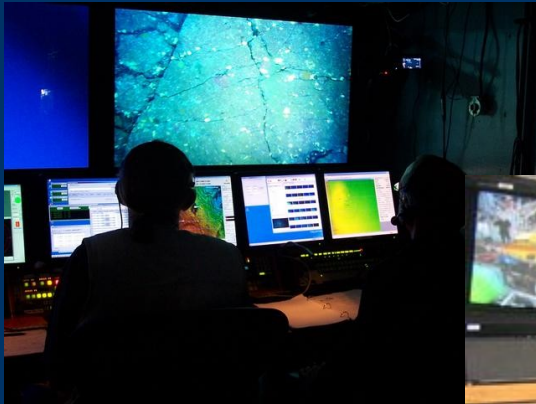
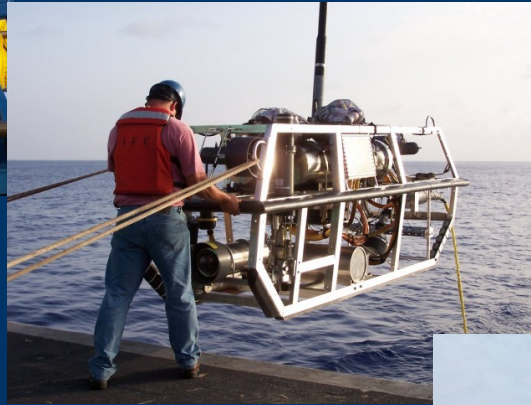
Graduate School of Oceanography
&
Ocean Engineering

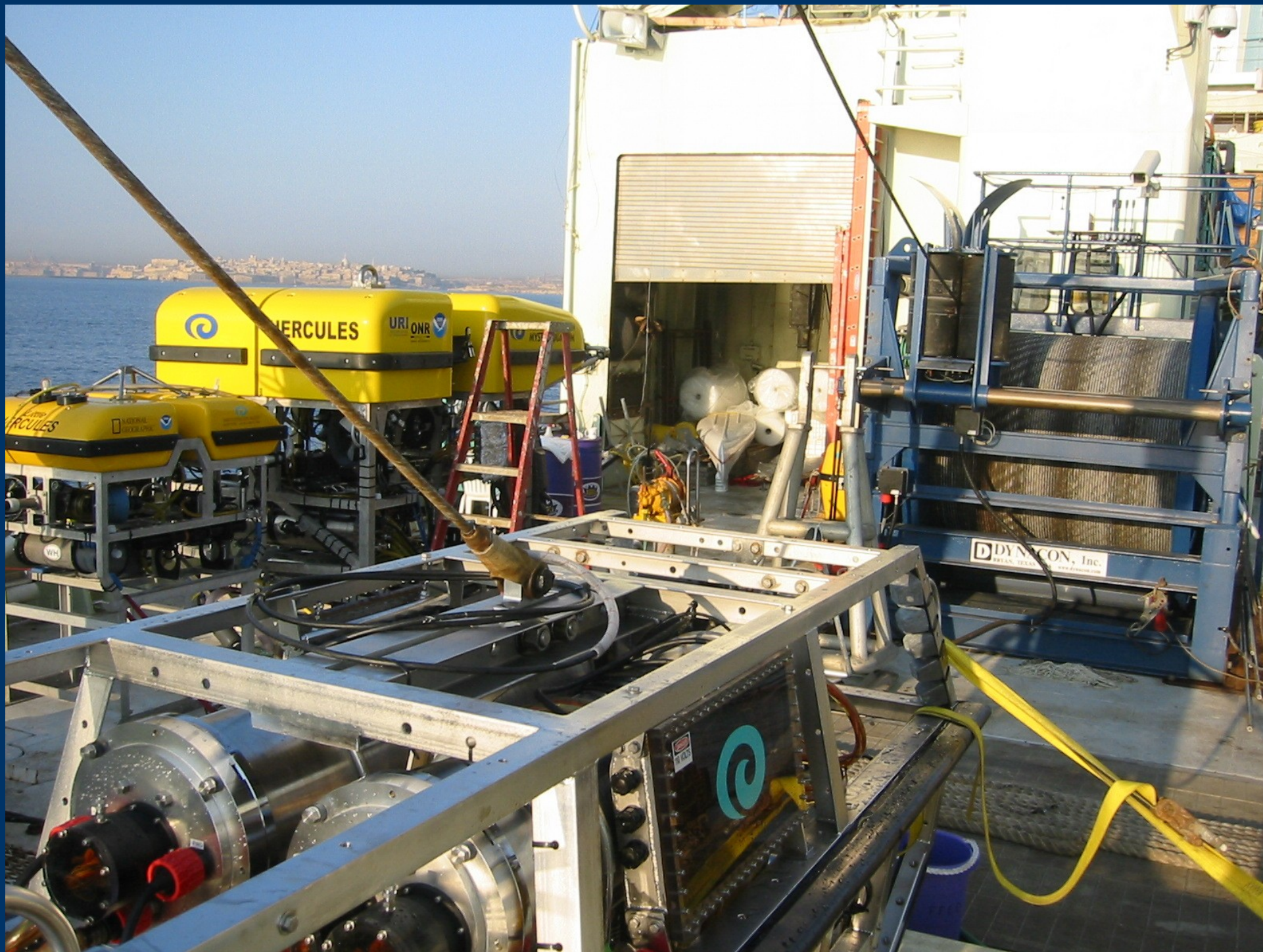
Basic vehicle types

- Remotely operated vehicles (ROVs)
 - Tied to the ship
 - Power and communications to the ship
 - Computing can be on the ship or sub-sea
- Autonomous Underwater Vehicles (AUVs)
 - Free swimming
 - Battery powered
 - Have their own “brains”
- Gliders / floats
 - Free swimming/drifting
 - Long duration
 - Buoyancy driven

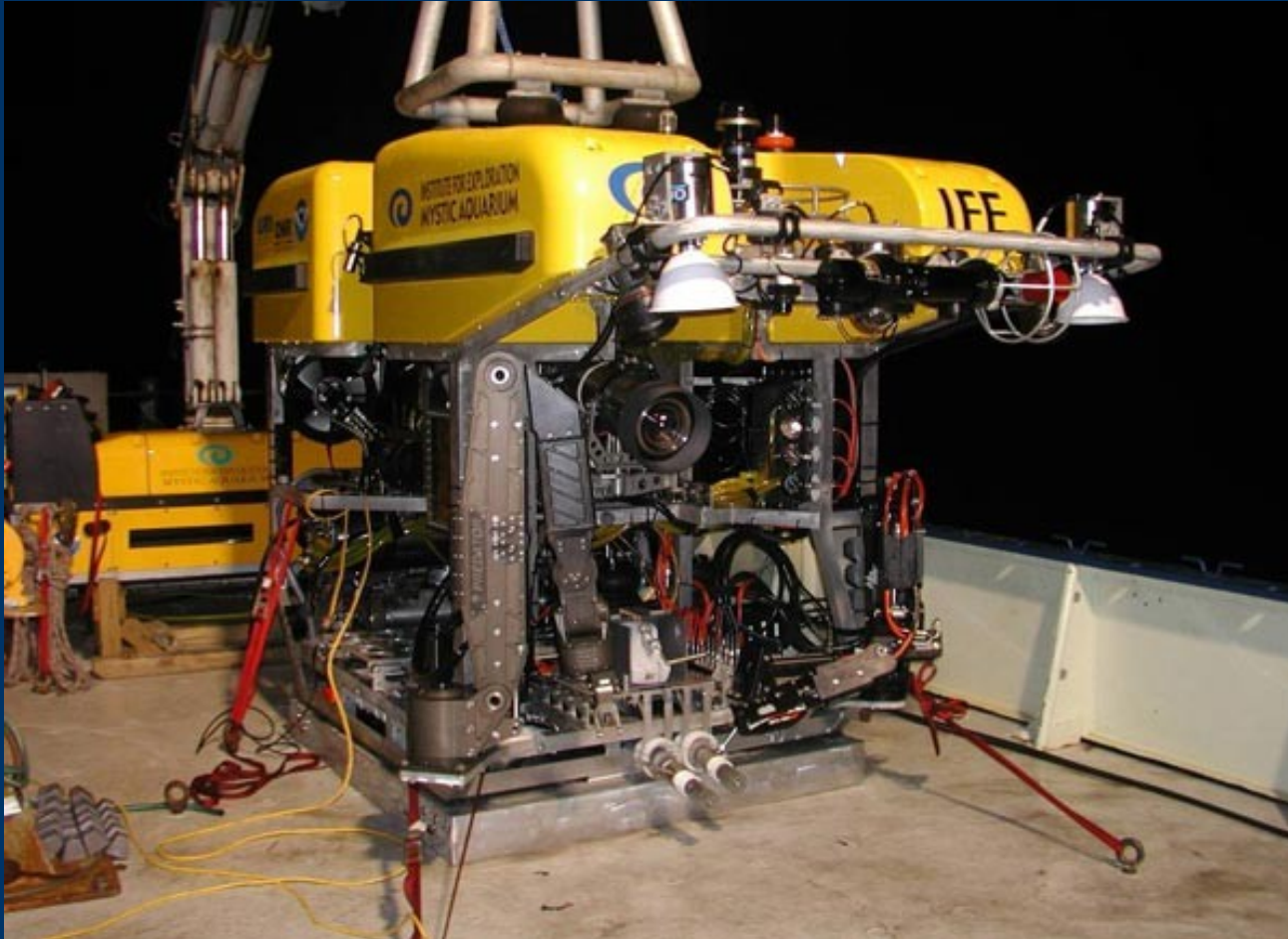


ROVs, what do you need?





Hercules ROV



- Depth 4000 meters
- Power 2000 watts
- Weight ~4000 lbs
- Hi def camera
- 6+ other cameras
- Multibeam mapping sonar
- 6+ lights and strobes
- Cable voltage 2700 V



HDG
octans **224.3** °T

Depth
paro1 **1672.1** m

ALT
dop
ht **15.0** m

COG **55** °T

SOG
dop bt **1.33** m/min

Z Vel
paro1 **0.6** m/min ↑

ETS
paro1 **21:42** gmt

TWD
paro1+dop **1687** m

DOP GYRO dive # 213
LOG JASON

21:27:01 GMT

LOG: C:\data\2006_08_07_21_00.DAT
LOG: C:\data\2006_08_07_00_00.CSV

from Jason DOP to CURSOR
brg: 57 °T range: 21 m

DOP: X=2826 Y=3206
LBL: X=2827 Y=3210



XY
10 m/div

XY Map

Zoom In Zoom Out

CTR SHIP Map Grid

CTR DOP Show Trail

CTR LBL UNITS

CTR CUR Auto CTR

Doppler
Reset 5h 18m 5sec

RST LBL RST CUR

Cursor Pos: XY meters

X **2843.4**

Y **3217.7**

Target

TGT DOP TGT LBL

LABELS TGT CUR

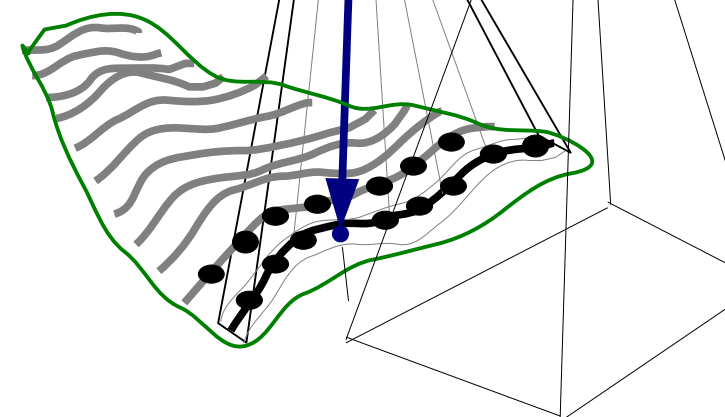
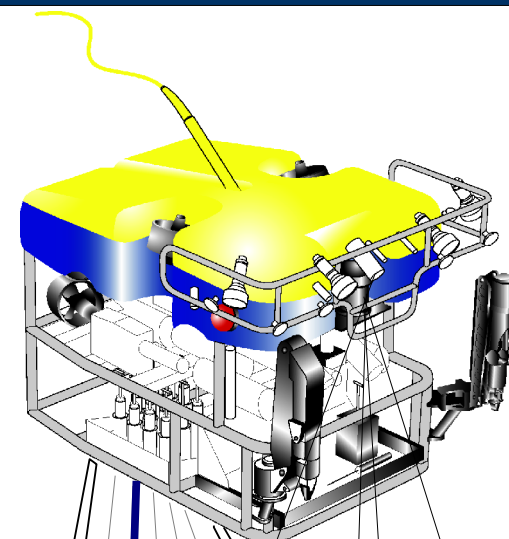
trail length

▲ ▼

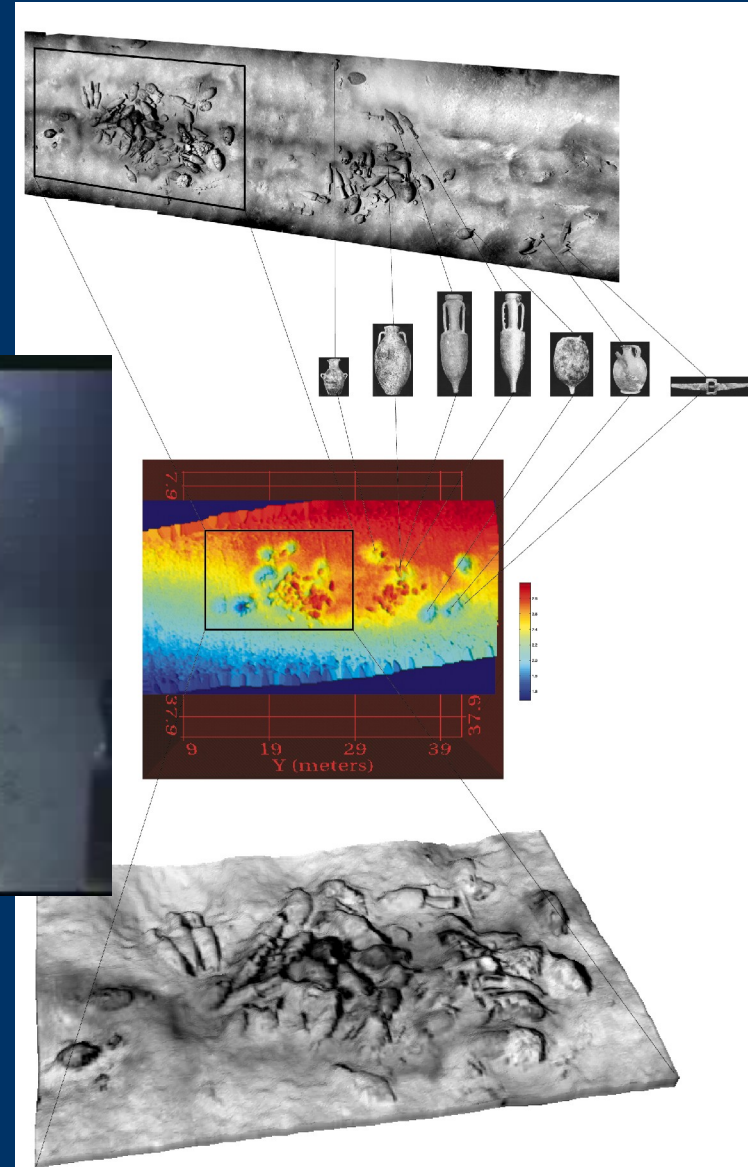
SNAP

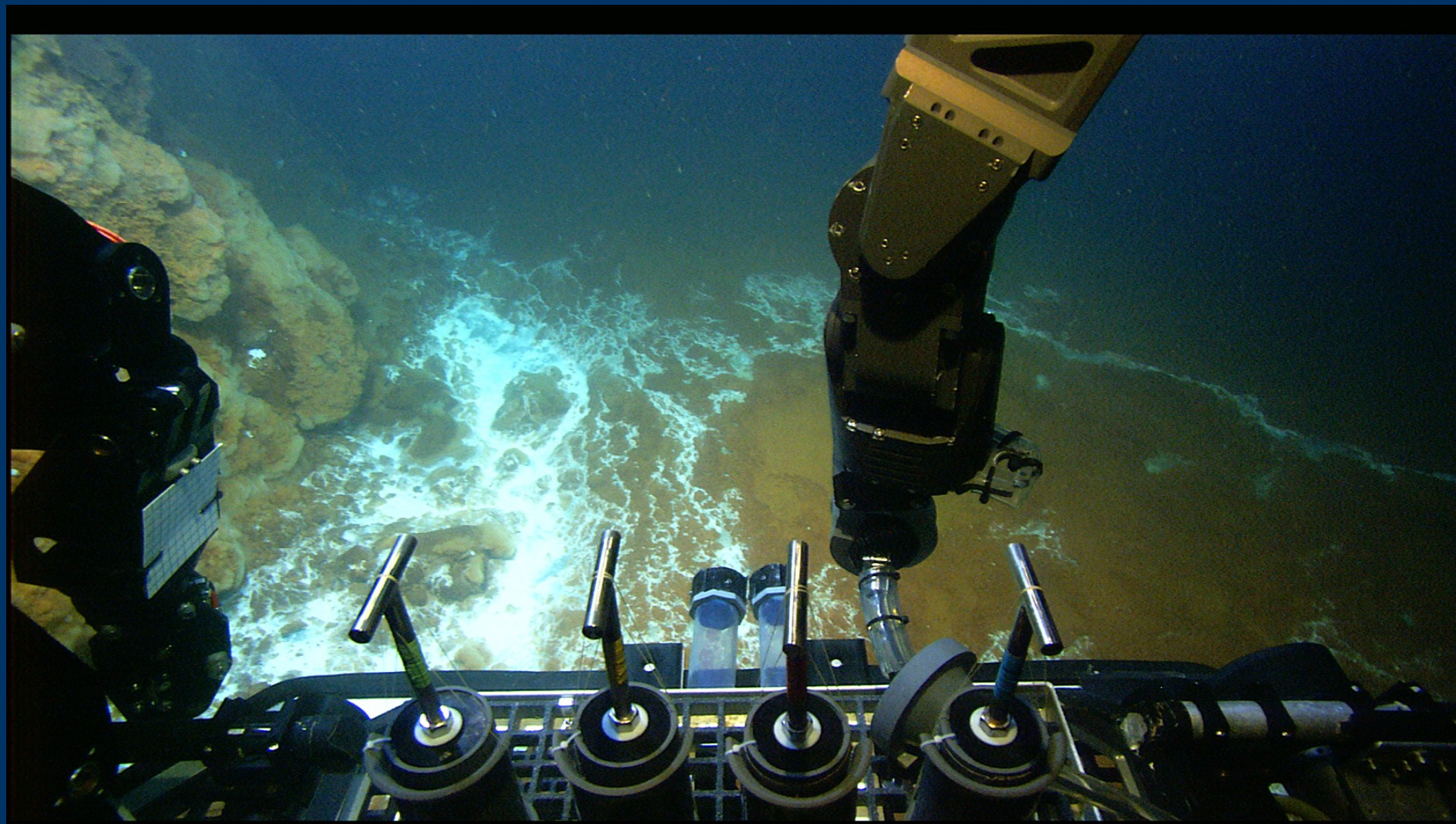
I/O Status

R	T	err
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
dop	oct	hst
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
bin		

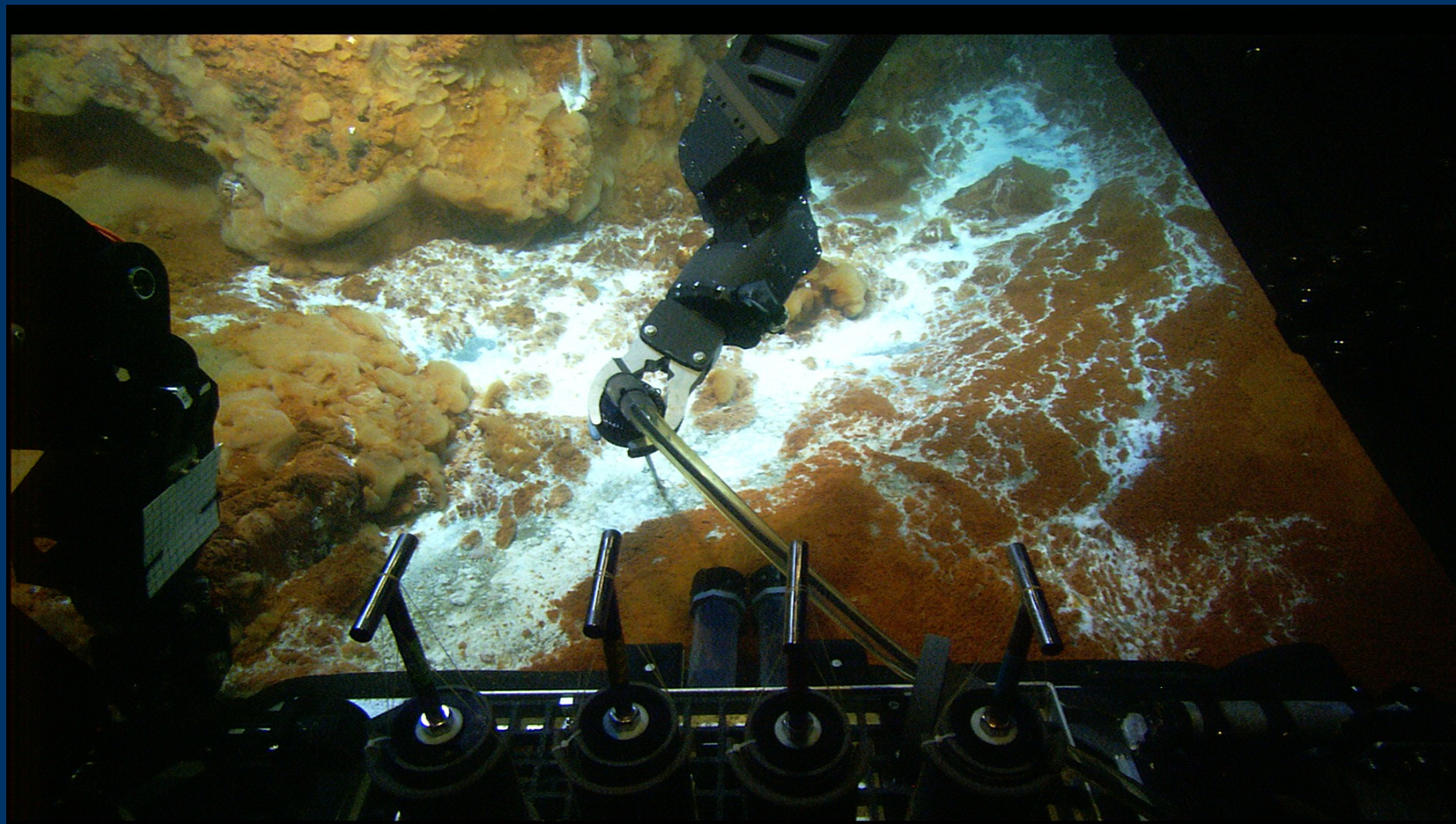


What are ROVs good at?

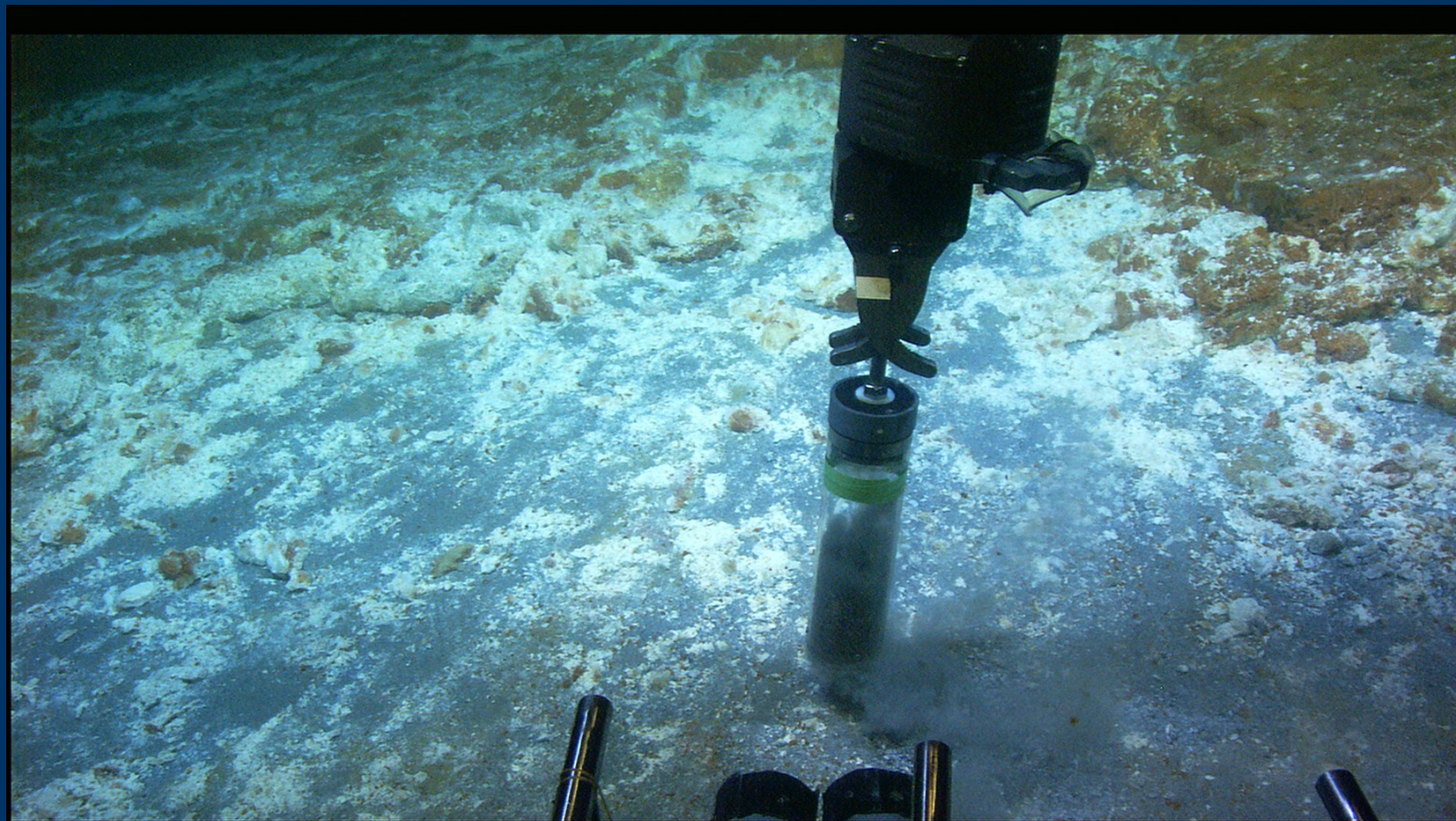


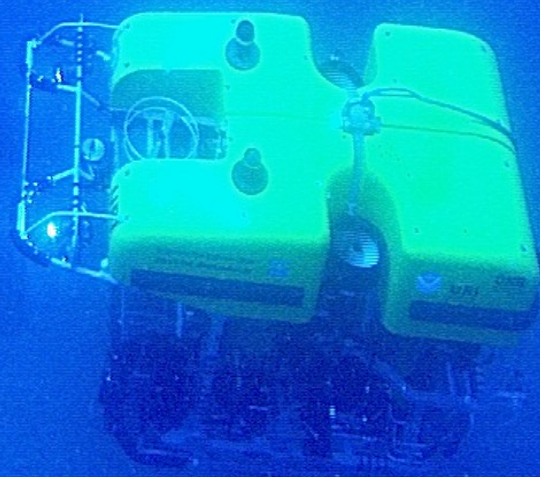






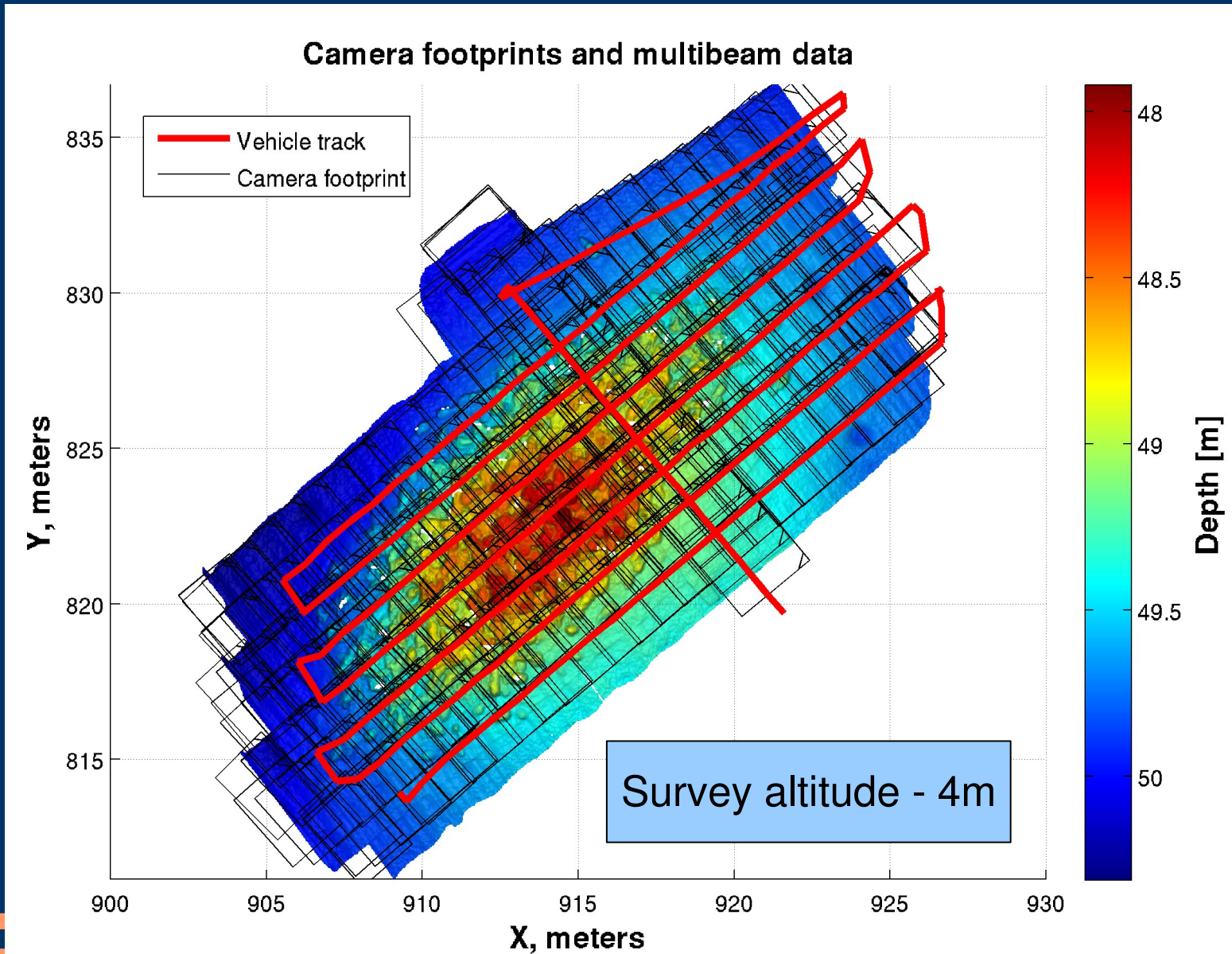




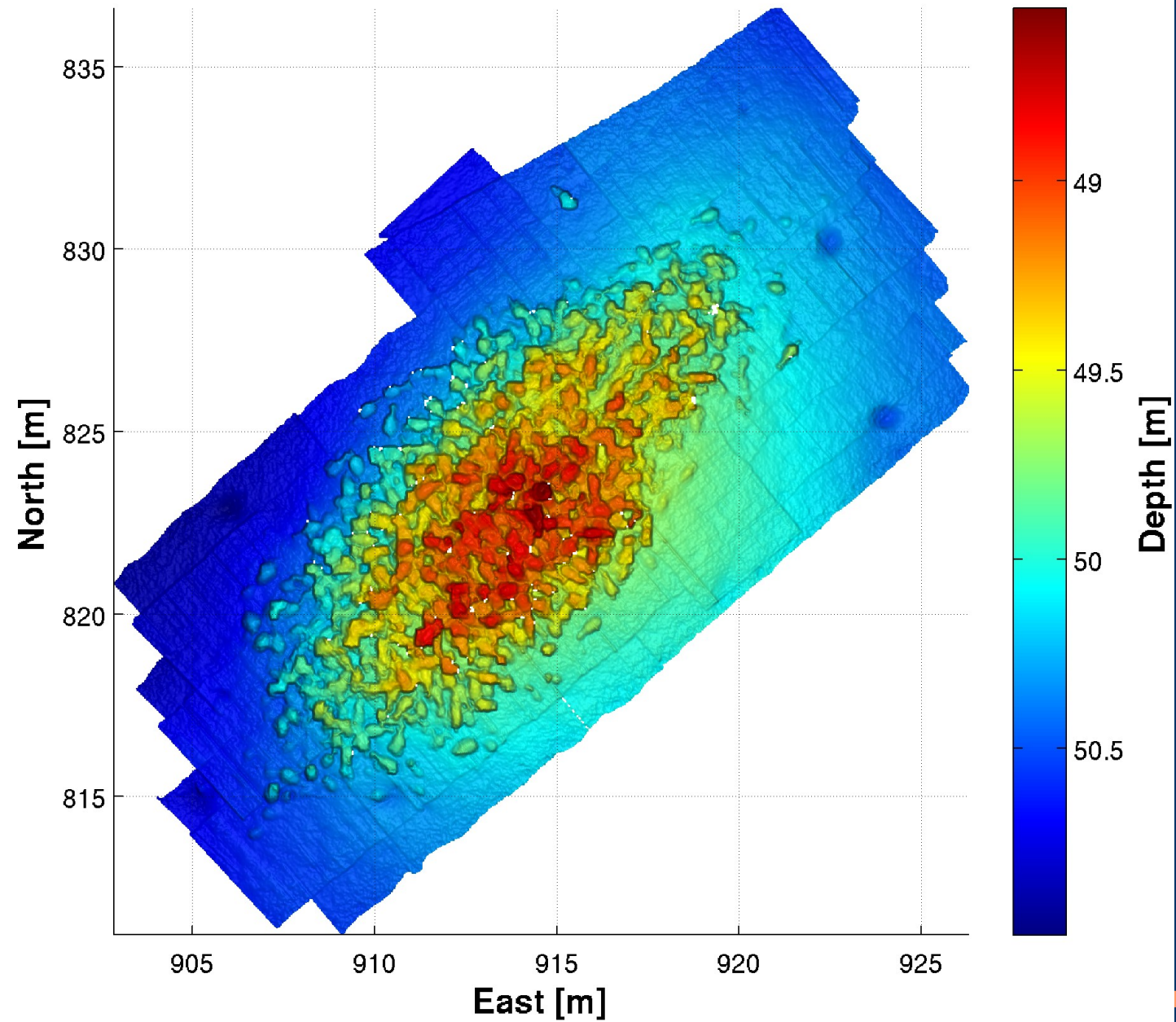




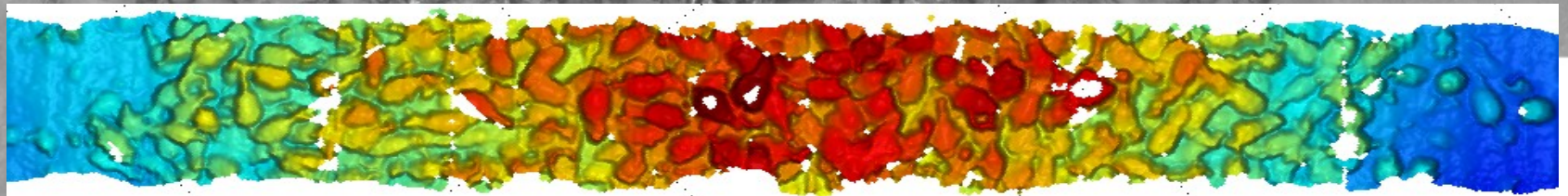
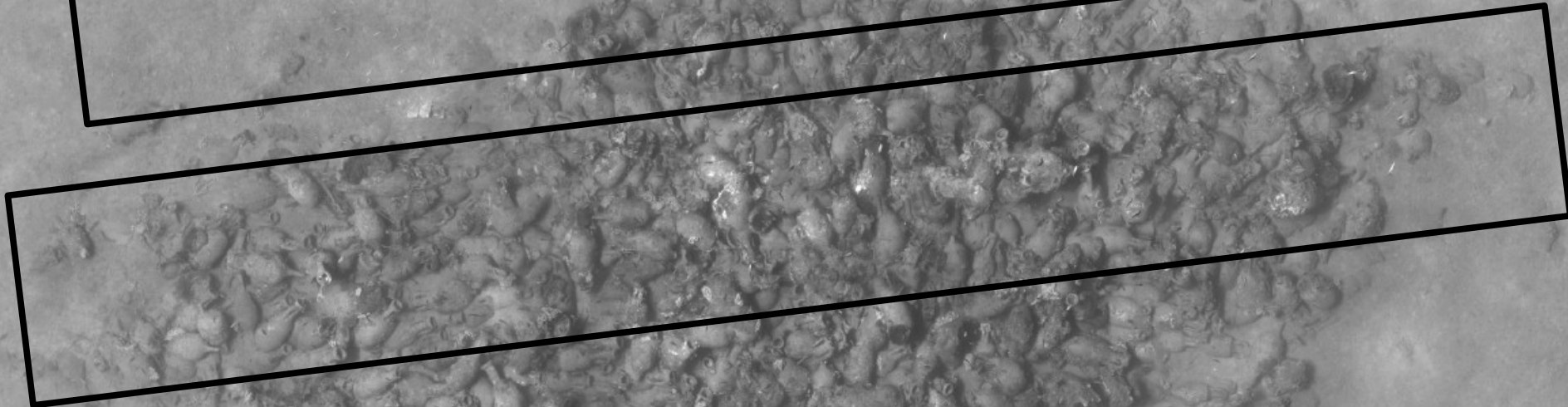
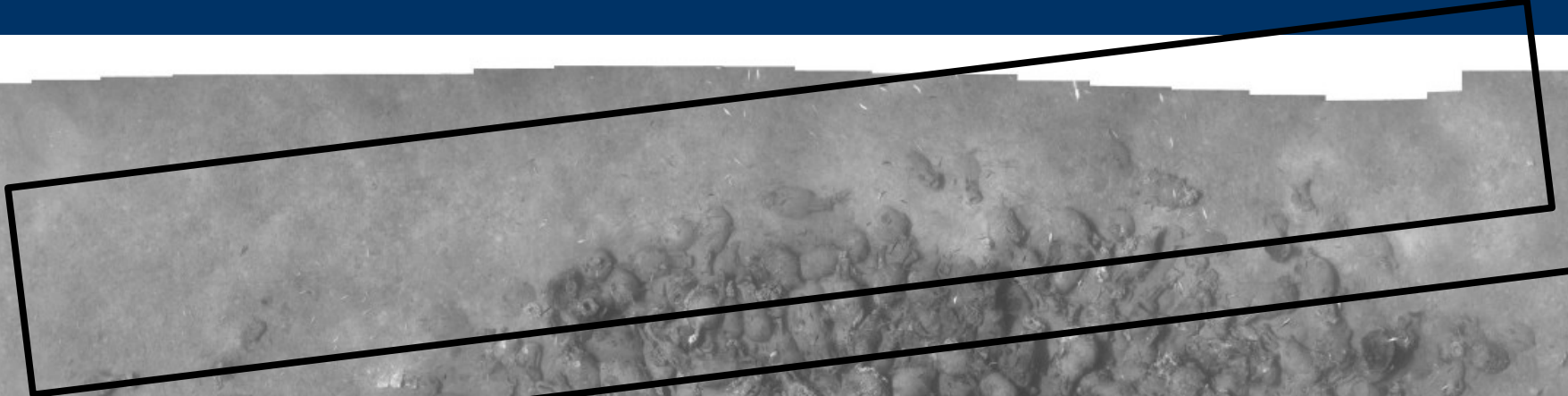
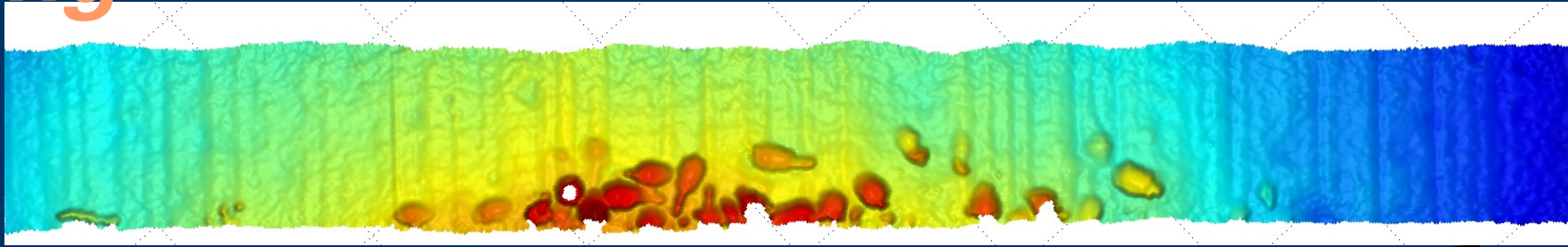
Surveys – mowing the lawn



Bathymetric maps

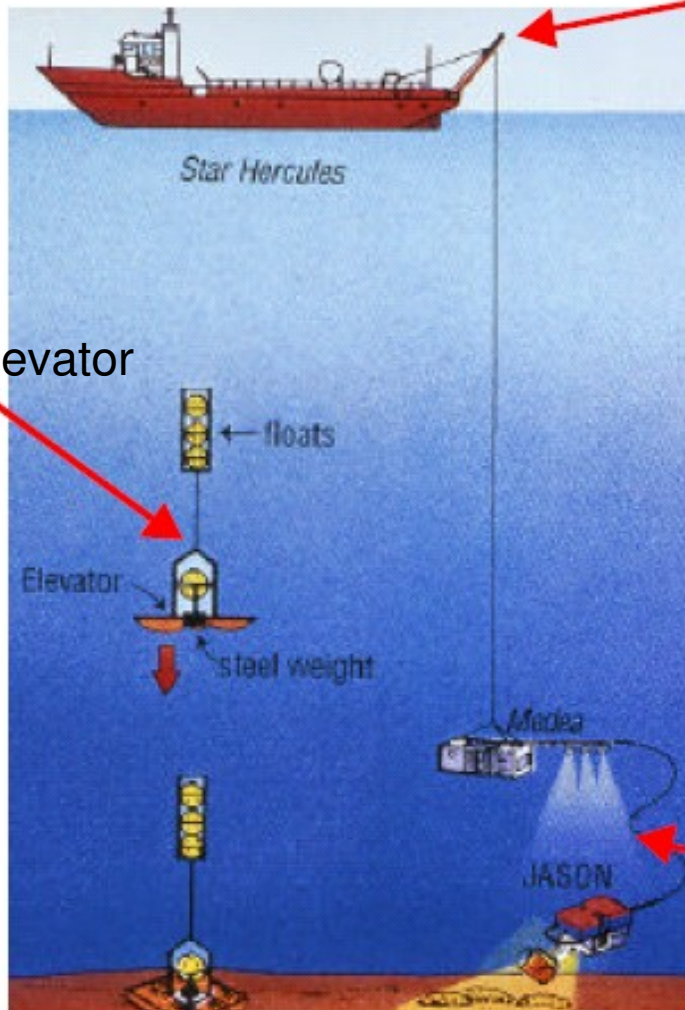


Imaging



Getting stuff back, elevators

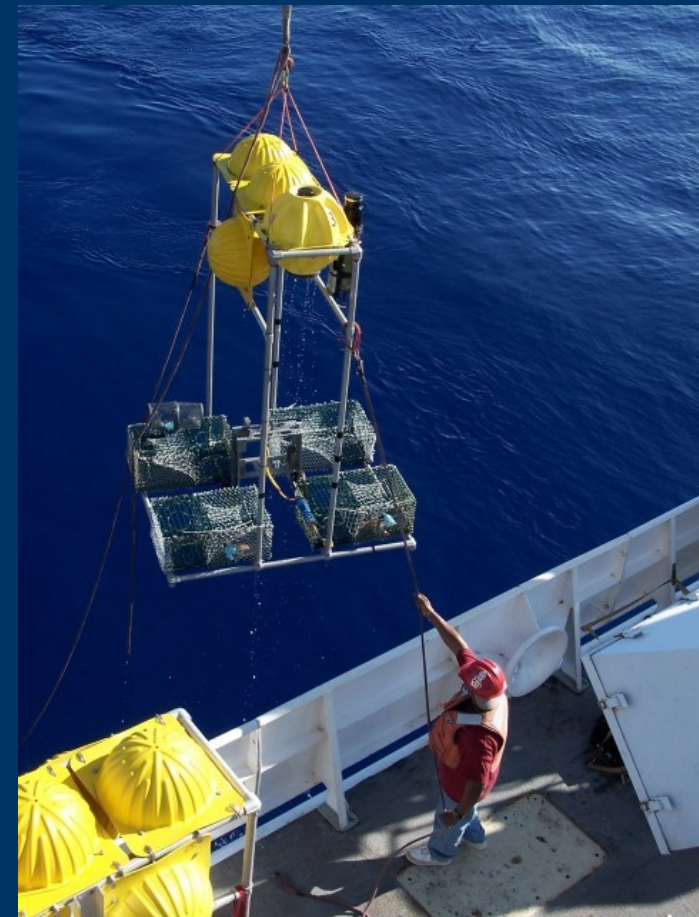
Figure [11] Elevator concept



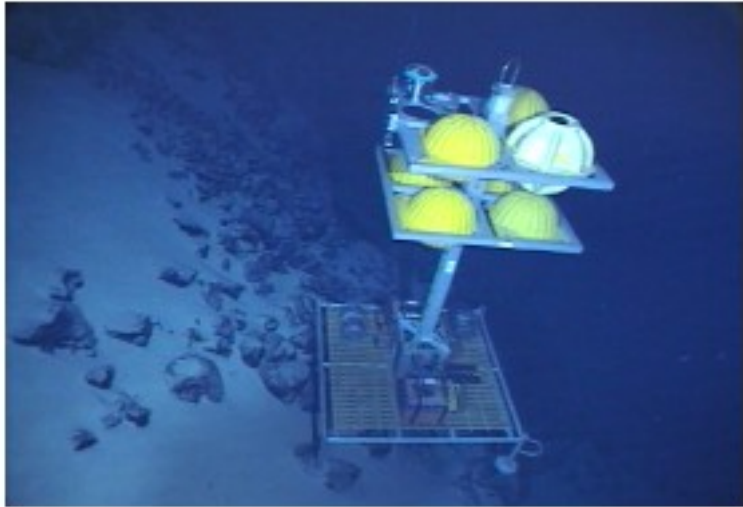
Support vessel
of opportunity

Elevator

Cabled
ROV system



New smart elevator



Results

